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Indiana State Parks & Reservoirs

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Title: 2009 State Park Deer Reduction Results
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Abstract: 2009 marked the 17th year since Indiana State Parks began deer reductions in an effort to mitigate damage to vegetation by an overpopulation of white-tailed deer (*Odocoileus virginianus*). Non-recreational deer reductions have continued annually since 1995 and have included up to 19 parks per year. The decision to initiate reductions at individual parks has been based on scientific vegetation monitoring. Decisions to continue reductions at individual parks are made annually using harvest data and consideration to elemental occurrence and status of rare, threatened, and endangered flora that could be affected by excessive browsing by deer. 4,745 applicants were drawn to assist 17 parks in removing 1,334 deer in 2009. Harvest data indicate a cumulative mean remaining just above targets for optimum habitat recovery.

Introduction

White-tailed deer (*Odocoileus virginianus*) have thrived in Indiana State Parks since they were reintroduced to Indiana in the middle 20th century. Mild winters, absence of once present natural predators, and a decades-long lack of human hunting within protected state park boundaries resulted in excessive browsing by deer that compromised the overall composition, structure and function of most natural communities throughout the state park system. Browse lines and small, malnourished deer were a common sight at most state park properties by the late 1980's.

The first deer reduction hunt was held in 1993, with 466 hunters harvesting 392 deer. Since 1995, as many as 19 parks have held reduction hunts in the same year (Table 1). The decision to initiate reductions at any one park has been supported by data from monitoring particular herbaceous species at individual parks. Once parks begin reductions, harvest data are incorporated into annual decisions regarding habitat recovery and whether specific parks require a reduction the following year. Research indicates that vegetation begins to recover once a firearm harvest per effort (H/E) nears 0.22-0.20 and/or a harvest per square mile (H/Mi^2.) is between 12 & 16 deer. Hunters are drawn for each park to fit a density of one hunter per 18-20 acres. Parks where archery is regularly used (Clifty Falls and Fort Harrison) due to urban interface have an H/E target of 0.10-0.08 and one hunter per 7-10 acres. Participants have been allowed to take up to three deer each (one of which could be antlered). These deer are in addition to regular statewide bag limits. Hunters who harvest receive "bonus" permanent tags from the park at no charge.

2009 Reduction Effort

Seventeen state parks required deer reductions in 2009. A total of 1,334 deer were harvested with 4,994 hunter efforts and 4,475 applicants drawn for two, 2-day reductions. Though the 2009 harvest was 134 deer less than 2008, the total acreage of parks in 2009 was 32% less than the year before. Poor weather prevailed at a majority of parks during the early hunt and expanses of standing corn remained adjacent to many properties throughout both hunts. Mean no-show of drawn participants remains steady at 47%.

H/E data indicate relative stability from 2007 to 2009. The cumulative mean H/E currently trends 0.07 above target levels (Figure 1). Thirteen parks remain above the target H/E threshold after the 2009 reduction effort.

A similar trend is demonstrated with H/Mi². The cumulative mean H/Mi² currently trends 5.0 above target levels (Figure 2). Thirteen parks remain above the target H/Mi² threshold after the 2009 effort.

Percentage of adult bucks harvested has increased steadily since the reduction program began. Five parks harvested 40% or greater adult bucks in 2009 (Figure 3). Though only slightly higher than 2008, the 2009 mean of 35% is a 51% increase from 1995.

Table 1. Number of State Parks and Deer Harvested 1993-2009

Year	Number of Parks	Total Deer
1993	1	392
1994	0	0
1995	4	1,048
1996	7	2,027
1997	9	2,174
1998	10	1,735
1999	9	1,510
2000	14	1,655
2001	13	1,483
2002	13	1,522
2003	19	1,961
2004	15	1,253
2005	16	1,336
2006	16	2,017
2007	18	1,300
2008	17	1,468
2009	17	1,334
Total Deer:		**24,215**

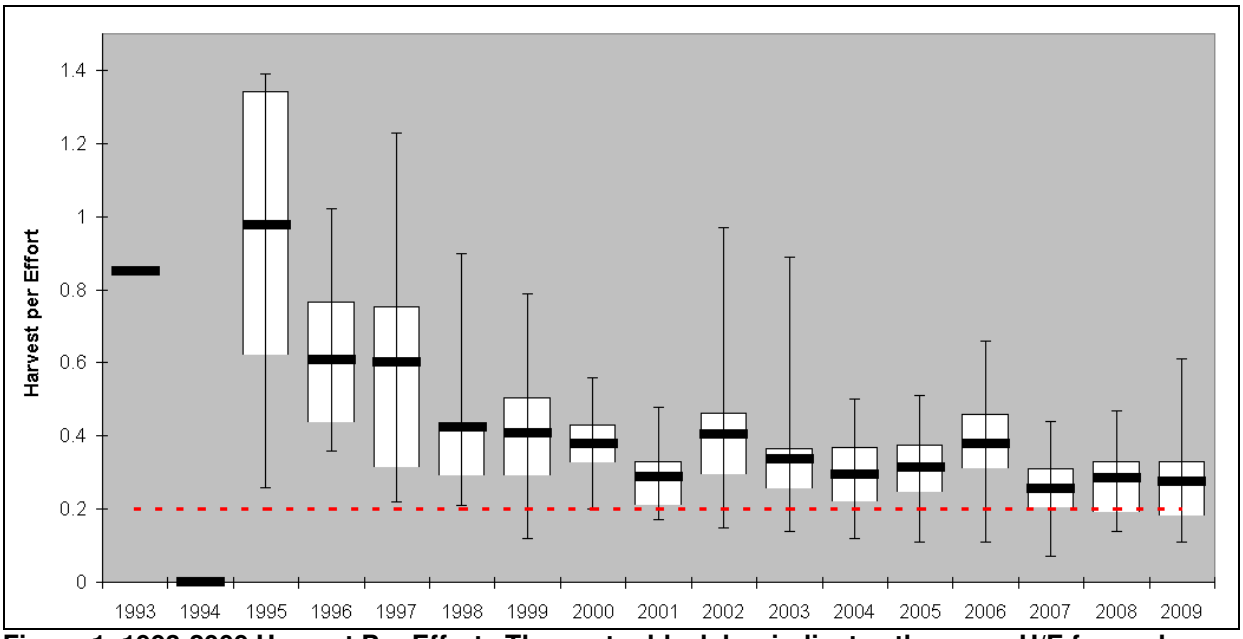

Figure 1. 1993-2009 Harvest Per Effort. The center black bar indicates the mean H/E for each year. The white box indicates the first quartile and third quartile. The whiskers represent the minimum and maximum H/E for each year. The red (hashed) line highlights the 0.20 target H/E level. Only one property (Brown County) was hunted in 1993, and no properties were hunted in 1994.

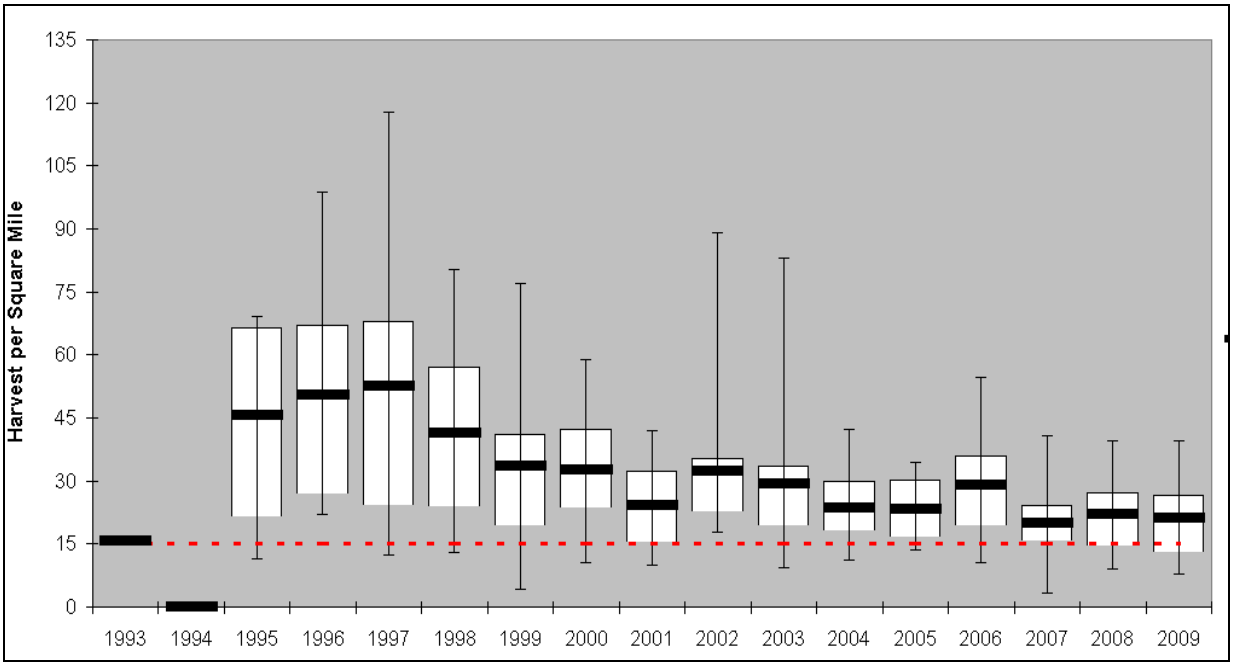

Figure 2. 1993-2009 Harvest Per Square Mile. The center black bar indicates the mean harvest per square mile for each year. The white box indicates the first quartile and third quartile. The whiskers represent the minimum and maximum harvest per square mile for each year. The red (hashed) line highlights the target of 15 harvest per square mile level. Only one property (Brown County) was hunted in 1993, and no properties were hunted in 1994.

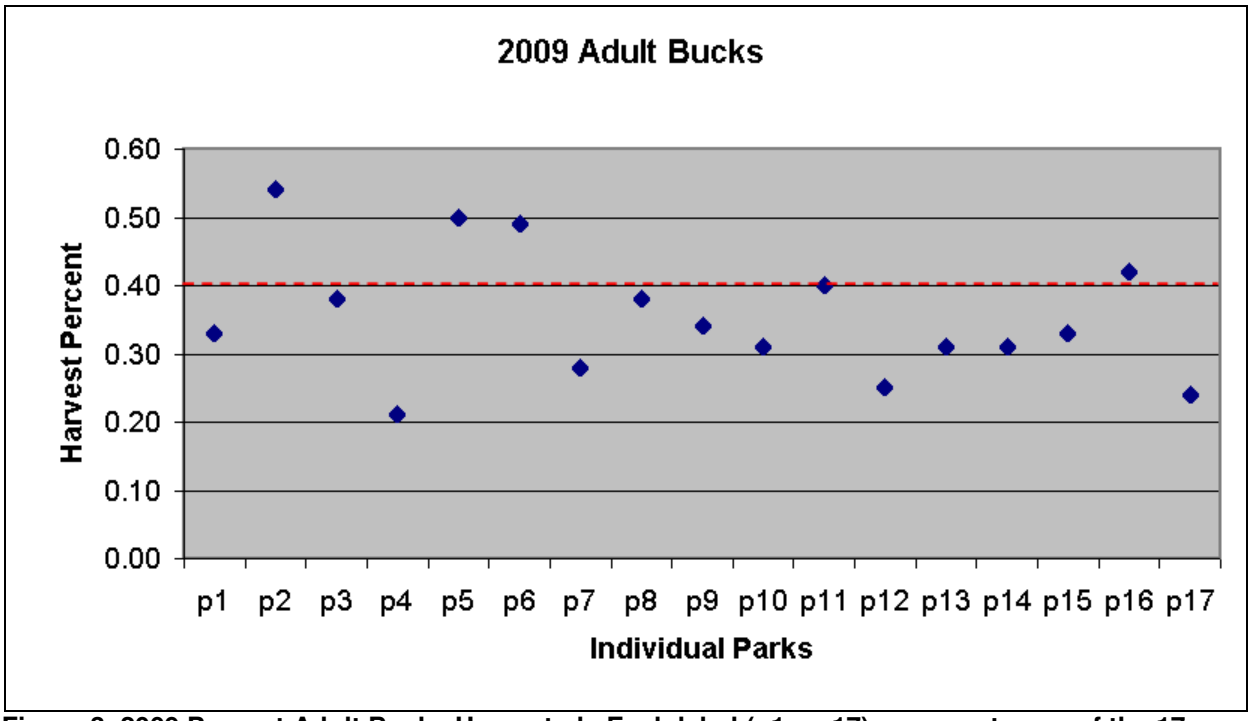

Figure 3. 2009 Percent Adult Bucks Harvested. Each label (p1 – p17) represents one of the 17 parks hunted in 2009.

Table 2. 2009 Parks Requiring Reduction and Harvest.

Park	Harvest
Chain O'Lakes	93
Charlestown	133
Clifty Falls	26
Fort Harrison	43
Harmonie	111
Lincoln	43
Ouabache	29
Pokagon	40
Potato Creek	186
Prophetstown	80
Shades	60
Shakamak	28
Spring Mill	16
Tippecanoe	119
Turkey Run	42
Versailles	202
Whitewater	83
Total:	**1,334**

With the exception of an increasing harvest of adult bucks, statistics illustrate an overall trend toward habitat improvement and maintenance throughout the parks. It should be reiterated that park reductions are not intended to manage deer to a recreational end, but rather to simply reduce the impact of browsing.

Gone may be the abrupt browse lines of the past but less obvious damage persists throughout the parks. The 2009 effort was a success in helping reduce and maintain browse effects. Cumulative harvest numbers are consistent with recent positive trends (Table 2).

In addition to standard annual rotation for those parks in maintenance phase, which take a year off periodically, a couple properties seem to have achieved such status for the first time in 2009. Parks requiring reductions in 2010 will be listed in the 2010-2011 Hunting and Trapping Guide.